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AUTHOR Sergiovanni, Thomas J.
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ABSTRACT

Our ways of thinking about the world determine the methods we find useful for studying the world. These methods in turn determine what we learn about the world and therefore how we define reality. As aspects of cultural science, teaching and supervision should not be studied using methods suitable for the natural sciences--the cultural sciences are mind-dependent and the natural sciences are mind-independent. Teaching and supervisory practices should not be bound to single standards, since effective practice is responsive to its own context. Models of teaching and supervision should not be applied restrictively, but as metaphors enabling the user to see situations in a new light and apply the new knowledge to practice. Each model can open up a particular view of reality but in the process masks off other potential views. No model is exclusively true, and each model has worth that varies according to the goals toward which the model is applied. Models valuable for some purposes may be inappropriate for others. The selection of goals remains a matter of normative judgment. Models can be assessed in terms of their cogency and relevance, both of which may vary depending on the goals selected. A two-page list of references concludes the document. (PGD)

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THEORIES AND MODELS AS METAPHORS: BUILDING A SCIENCE OF SUPERVISION

Thomas J. Sergiovanni
Trinity University, San Antonio, Texas

ED269888

There are always walls enclosing us.
Dilthey (Philosopher)

The human mind abhors chaos,
finding order even if there is none.
Pagels (Physicist)

A system is but a squint at truth,
and the more logically that system is
developed, the more horrible that mental
squint becomes. The human desire to
see only one phase of truth which we happen
to perceive, and to develop and elevate
it into a perfect logical system, is one
reason why our philosophy is bound to grow
stranger to life.
Lin Yutang (Sage)

Windows and walls
(day after day)
windows and walls
Dan Fogelberg (Singer)

They ain't balls and they ain't strikes
until I calls them.
Anonymous Umpire
(Philosopher
Laureate)

There is remarkable agreement among scientists and philosophers alike that human thinking influences scientific reality. The social scientists McGrath, Martin and Kulka (1982), for example, point out " . . . we can never know anything independently of the ways we found it out; empirical knowledge is always contingent on the methods, populations, situations and underlying assumptions involved in the process by which knowledge

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was acquired" (105). "Finding out" decisions are human choices. Much of what is found out in research and counts as scientific evidence is an artifact of these human choices.

Human choice is a factor in determining scientific reality in the physical as well as the social sciences. Heisenberg's Uncertainty Principle and Bohrs' Principle of Complementarity are examples from physics. Together these principles establish that the characteristics and properties of quantum reality cannot be defined separately from their environment and decisions which researchers make in studying them. As these conditions change so do the characteristics and properties of quantum reality. Electrons, for example, exist in the form of particles or waves depending upon how they are measured. Measurement decisions are human decisions and thus scientific reality (particle form) becomes an artifact of such decisions.

Not only do human decisions regarding method effect scientific reality but the mindset of the researcher contributes to this reality as well. For example, in discussing a science of history Dilthey points out, "The first condition for the possibility of a science of history consists in the fact that I myself am an historical being, that he who researches into history is the same as he who makes it" (quoted in Bleicher, 1980:23). Scientists, the argument is made, are linked to specific contexts and traditions which provide them with a preunderstanding of the subject matter they study and thus they are not able to inquire into reality with a neutral mind.

As human thinking and acting influences scientific reality, so does scientific reality influence human thinking and acting and resulting evidence is an artifact of this interaction. But sciences differ and depending upon which species we have in mind this balance of influence changes. In the physical sciences, for example, scientific reality emerges as the more dominant of the two. In the cultural sciences human thinking and acting is the more dominant.

How are the cultural sciences different than the physical? Weber (1922) suggests that the goal of the cultural sciences is the study of social behavior through understanding the motives and intentions of others and by interpreting the subjective meanings of their actions. Basic concepts for the cultural sciences are the interpretation of one's own and others' experience, the establishment of meaning and the interpretation of meaning (Schutz, 1932). The cultural sciences acknowledge the omnipresence of subjectivity and subsequently how concepts of objective meaning and reality are affected. Outside facts, within the cultural sciences, change through interpretation as they become inside reality. The cultural sciences recognize that humans both behave and act but give prime attention to the human as actor. Thus most of what people do and say are considered to be embedded in intention and motive and are not construed as mere behavioral reactions to physical and psychological stimuli. To understand human action, therefore, one must move beyond the recording and averaging of behaviors to understanding the whys and

what fors of such actions.

In sum, the cultural sciences are largely mind dependent. The physical sciences, by contrast, are largely mind independent. The subject matter of the two are construed differently. The physical sciences emphasize a world comprised of inanimate objects that exist independently of human awareness and insight, can be objectively described, and thus become universally verifiable truth. The cultural sciences, by contrast, emphasize a constructed reality born of human intention, modified by social interaction and verified by the meanings and sense this reality provides to people.

I have argued elsewhere (Sergiovanni, 1982, 1984, 1985) that the nature of teaching and learning and of supervision and evaluation requires that professional practice be based on the realities of the cultural sciences. The crux of this argument is that supervision and teaching differ markedly from the theoretical view of the physical sciences. More pointedly, scientific knowledge so construed and literally applied is mismatched to the realities of supervisory and teaching practice.

The argument unfolds as follows. Patterns of supervision and teaching practice are characterized by a great deal of uncertainty, instability, complexity and variety. Value conflicts and uniquenesses are accepted aspects of educational settings. Since situations of practice are characterized by unique events uniform answers to problems are not likely to be very helpful. Since teachers, supervisors and students bring to the classroom

beliefs, assumptions, values, opinions and preferences objective and value-free supervisory strategies are not likely to address issues of importance. Since reality in practice does not exist separate from persons involved in the processes of teaching and supervision, knowing cannot be separated from what is known. Since evaluation reality is linked to the observer and to decisions she or he makes about methods of evaluation, it is construed as an artifact of this situation. Since supervisory reality is context bound and situationally determined, the practical language of actual classroom life and actual teaching events will be found more meaningful than the theoretical language or language which may be inherent in rating scales and other measurement devices associated with the traditional scientific view. Where objective or discovered reality exists in teaching and supervision, it becomes transferred into constructed reality as people process and interpret in search of meaning. This world of supervision is quite at odds with the more predictable and stable world within which the physical sciences flourish.

Supervision unfolds, for example, to inform the decision-making process. Thus evaluation data cannot stand apart from human judgments. The basic building block of supervisory knowledge is, therefore, sense-datum, not brute (C. Taylor, 1971). Examples of brute data in supervision and evaluation of teaching would be displays depicting patterns of teacher questioning and student responses, frequency counts of student "on task" behaviors, evaluation instrument checks recording the presence or

absence of certain teaching behaviors as well as verbatim transcripts of classroom verbal interactions analyzed according to fixed rules. Sense-data, by contrast, would be accounts of what this information means given supervisor and teacher perceptions, motives, and intentions and the unique events which define and account for the classroom situation under study.

The more cultural or mind dependent the science the greater is the disparity in meaning between the external configuration of events (brute) and internal meanings (sense). The meaning of brute data is fixed free from mind and context conditions. As brute is interpreted into sense-data meaning typically changes. Different mind sets and contexts, for example, make different sense of the same brute data. It follows that sensible judgments about the adequacy of teaching cannot be made by merely collecting and analyzing brute data. Instead, worth is determined by examining such data in light of the context from which it emerges.

To complicate matters the context for teaching which counts to people is largely socially constructed reality. Supervision, for example, is not concerned with teaching defined as social behavior but as social action. In describing Weber's thoughts on this distinction Walsh notes that within the social sciences the concept "social" is defined in terms of a relationship between the behavior of two or more people and the concept "action" is defined as behavior to which a subjective meaning is attached. If indeed teaching is construed as more social action than social behavior then its evaluation must always be subjective. In order

to assess teaching construed as social action supervisors must become participants and not merely observers with respect to its unfolding. This reality leads to the following dilemma: "If we become participants do we not lose our objectivity? If we remain mere observers, do we not lose the very object of our science, namely the subjective meaning of the action?" (Walsh, 1967, xxiii).

The characteristics of cultural science are omnipresent in supervisory science and practice. What implications do these characteristics hold for how supervisory knowledge is developed and used? They make acceptance of any theoretical model (whether based on empirical research or other modes of inquiry) and resulting models of practice suspect for direct application to practice. For this reason, professional practice in teaching and supervision cannot be conceived as applied sciences allied with a science embedded in one or several disciplines. Supervision and teaching are not "sciences" in a literal sense. Further, it is not necessary for professional practice to be embedded in a literal science to emerge and flourish. What is needed, however, are multiple modes of analyzing teaching and supervision in a scientific spirit and in a disciplined manner (Scheffler, 1973:83). If this inquiry is to be anchored in the concept of cultural rather than physical science with constructed social reality interpreted in context recognized as an omnipresent necessity, then the question remains as to how best inform such construction. What is the role of theory and research and models

of practice, whatever their origin, in informing the work of supervision?

Not only are models of research and practice mind dependent they are mind dominant as well. That is, once established and articulated they frame the way one thinks about analysis and practice. They structure one's thinking, provide one with a logic and create a mindscape (Sergiovanni, 1985) which determines what one sees and does, one values and doesn't. As Greenfield (1982) reminds us:

> Language is power. It literally makes reality appear and disappear. Those who control language control thought - and thereby themselves and others. We build categories to dominate the world and its organizations (8).

For example, when caught up in the language of the teaching effectiveness research we come to view teaching and supervision in a certain way. An evaluation system based on such research is a subjective artifact of this thinking. By the same token, when caught up in the language of "informal teaching" we come to view teaching and supervision in a different way. An evaluation system based on this tradition would value certain characteristics of teaching that would be different than that found in the teaching effectiveness research. Good teaching, then, becomes an artifact of the system used. The system is a subjective expression of a mindscape. A teacher who follows the teaching effectiveness research in her or his practice would be declared a winner under

one system and a loser under the other. Winning and losing becomes an artifact of the evaluation system. The evaluation system used is mind dependent in conception and mind dominant in implementation - subjective on two counts. Teaching effectiveness, therefore, cannot be determined objectively.

The intent of this discussion is not to choose from among several models of teaching and supervision (ie. teaching effectiveness, Hunter, informal, artistic, clinical, etc.) in search of a one best way or for that matter to value one model more than another in an absolute sense. All have worth but none are true. Within the mind dependent cultural sciences such as teaching and supervision absolute truth is difficult to establish and is an impractical yardstick for judging goodness. The standard of relative worth, on the other hand, is both accessible and practical. A model is considered worthwhile, for example, if it helps one understand better the teaching events and situations under study and helps one to make more informed decisions about this reality.

In considering relative worth it is important to note that no matter how refined a model becomes or how precisely it is translated into practice the model cannot enlarge the basic premise upon which it rests. This is The Law of Conservation of Information well understood in the more established sciences but often forgotten by those of us who toil in such fledgling fields as teaching and supervision. In discussing this law the Nobel Laureate Medawar (1984) states "No process of logical reasoning -

no mere act of mind . . . can enlarge the information content of the axioms and premises or observation statements from which it proceeds" (79). The teaching effectiveness model, for example, is based on a specific set of assumptions about teaching and learning which require that we have in mind a rather specific objective for students to learn, get students ready to learn this objective, state the objective to them, teach to the objective, keep students on task with respect to the objective, require students to practice the task, provide reinforcement in the process and test students to insure that the objective has been met. Taken literally and applied to all situations these are small premises on which to base a science of teaching and an allied science and practice of supervision. Clinical supervision and other models have their assumptions, protocols, steps and prescriptions too and the Law of Conservation of Information applies to them as well.

Models of teaching and supervision are much like windows and walls. As windows they help expand our view of things, resolve issues that we face, provide us with answers, and give us that surer footing we need in order for us to function as researchers and practicing professionals. In this sense, mindscapes are useful for they provide us with a coherent, albeit limited, view of teaching and supervisory reality. But because reality is mind dependent "there are always walls enclosing us" (Dilthey quoted in Bulfhof, 1980:91). As walls these same models serve to box us in, to blind us to other views of reality, other understandings and

other alternatives.

In discussing the windows and walls metaphor Eisner (1985) states:

> . . . theory is both an asset and a liability. It is an asset because it provides guidelines for perception: it points us in directions that enable us to see. But it is also a liability because, while it provides windows through which we obtain focus, it creates walls that hamper our perceptions of those qualities and processes that are not addressed by the concepts we have chosen to use. Our theoretical frameworks function as templates for perception. Every template conceals some parts of the landscape just as it brings other parts to our attention (261).

Thus whether we are referring to the teaching effectiveness research, informal teaching, the Hunter model, clinical supervision, target setting or other models we are provided with a view of reality which both increases and decreases our understanding at the same time.

One can capitalize on increases of vision and understanding and lessen decreases by transcending The Law of Conservation of Information and the limitations of our windows and walls. Doing so requires that research and practice models be viewed metaphorically rather than literally. That is, they not be

conceived as truth designed for application but as thought frames which inform decisions of teachers and supervisors as they practice. Scheffler, for example, states, "The notion that one can confidently proceed by simple deduction from theory to practical recommendations without regard to related theories, auxiliary assumptions, or possible feedback from recalcitrant cases into the theoretical assumptions themselves, is a mistaken notion" (1973:185). On this point he quotes William James who stated in 1892:

> you make a great, a very great mistake, if you think that psychology, being the science of of the mind's laws is something from which you can deduce definite programmes and schemes and methods of instruction for immediate schoolroom use. Psychology is a science, and teaching is an art; and sciences never generate arts directly out of themselves. An intermediary inventive mind must make the application, by using its originality (Scheffler, 1973:185).

Informed intuition and reflective practice are key concepts in understanding the link between knowledge and use. Neither are directly dependent upon models of teaching and supervision but neither can evolve separately from such models.

Suggesting that research and practice models be viewed metaphorically rather than literally is itself a metaphor. Metaphors are language expresssions which are anchored in familiar

meanings and which help one discover new meanings. They provide conceptual leaps from one thought frame to another and help one to view life under study from a new vantage point. For example, one can view schools metaphorically as factories, gardens, shopping malls, airport terminals, and in many other ways. Each of the metaphors helps one to see the familiar in a new light. While none accurately describes schooling, together they help us to create a richer and more useful understanding. An understanding which can help us to practice schooling more meaningfully and productively.

Similarly, viewing teaching effectiveness, clinical and other supervisory models metaphorically would provide to teachers and supervisors conceptual rather than instrumental knowledge (Kennedy, 1984). This conceptual knowledge considered as part of a broader array of knowledge (ie. the teacher's motives and intentions, those of the supervisor, idiosyncrasies which define the teaching and learning context under study) becomes professional knowledge when decisions and actions ensue. Professional knowledge, therefore, should not be equated with the knowledge of research and practice models but is created in use as teachers teach and supervisors supervise. Professional knowledge is an accumulation of the referentially based decisions which professionals make as they practice.

Does taking a metaphorical stance mean that all models are to be considered as equally true or equally worthwhile? With respect to truth, for example, is a model of teaching and supervision

based on limited premises equal to a more comprehensive view? It is not defensible to accept the position that all models are equally true or worthwhile. The question is, how will relative truth and worth be determined? The question of relative truthfulness can be resolved by model approximations to traditional scientific criteria (efficacy, validity, reliability, accuracy, precision, robustness, coherence, etc.). Such an analysis will result in some models being rejected as untruthful and others as having varying dimensions of truthfulness.

The teaching effectiveness model, for example, is true with respect to precision but true only in a limited sense with respect to accuracy. In this example, accuracy refers to the general importance or value of an educational activity or goal. Precision, on the other hand, refers to the specificity and rigor with which the activity or goal can be monitored, programmed, articulated and measured. Within this model, teaching effectiveness is construed as a narrow strike zone and is defined in the form of predetermined, highly structured and highly specific outcomes amiable to easy identification and measurement. One is effective if teaching pitches land inside this learning strike zone and ineffective if teaching pitches (regardless of general worth) do not. A limitation of the teaching effectiveness model is its tendency to substitute precision for accuracy. When this occurs there is a tendency to select, fit or force objectives and activities to be evaluated to the forms and structures which match the technologies required for precise evaluation. The

methods and procedures of evaluation determine what it is that will be evaluated rather than the other way around. The attractiveness of the teaching effectiveness model for many seems to be more in the the precision of its method than in the accuracy of its outcome. Still, when highly specific learning outcomes make sense; when it is less important that students interact with the learning process to construct their own personal meanings; and when reliability in learning is important this model of teaching and its accompanying supervisory designs may be hard to beat.

Beyond assessing relative truthfulness how does one assess the relative worth of available models? At the hearts of teaching and supervision a value judgment must be made with respect to how learning ought to take place and what ends are of most worth. Answers to questions of how and what cannot be resolved scientifically as if they were factual assertions. They are, instead, the products of normative assertions. As P. Taylor (1961) suggests normative assertions are true only because we decide to accept certain standards, rules and conditions as being applicable to what we are making the assertions about. He states: "Our adoption of a standard or rule on which the truth or falsity of our assertion depends does not itself depend on the way things are. We must decide what ought to be the case. We cannot <u>discover</u> what ought to be the case by investigating what is the case" (248).

Normative assertions can be informed by examining the underlying human conditions which shape and define the situation

at hand. In his 1985 AERA address Bruner discussed the connection between several models of learning and underlying human conditions suggesting that the later determined the worth of the former. The following three quotations from his address are illustrative:

> . . . any model of learning is right or wrong for a given set of stipulated conditions, including the nature of the tasks one has in mind, the form of the intention one creates in the learner, the generality or specificity of the learning to be accomplished, and the semiotics of the learning situation itself - what it means to the learner (5).

> Yet the model of the learner is not fixed but varies. A choice of one reflects many political, practical, and cultural choices. Perhaps the best choice is not a choice of one, but an appreciation of the variety that is possible. The appreciation of that variety is what makes the practice of education something more than a scripted exercise in cultural rigidity (8).

> In a word, the best approach to models of the learner is a reflective one that permits you to "go meta," to inquire whether the script being imposed on the learner is there for the

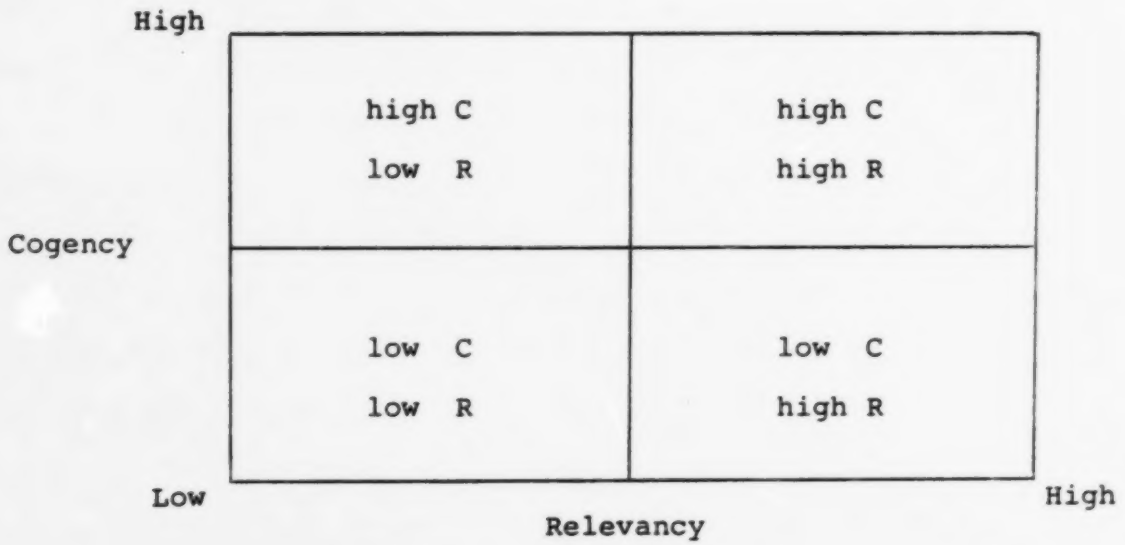
reason that was intended or for some other reason (8).

There are as many views of supervision as there are teaching and of teaching as there are learning. A reflective practice of supervision seeks to capitalize on this richness by avoiding a one best way mentality. A rich practice turns poor once a decision is made to bring one view to the forefront at the expense of others. Still, not all views are equally appropriate or equally worthwhile for all situations. Occasionally choosing among them for one to use or more typically, creating a new view from the rich vantage points available (that is creating professional knowledge in use as one practices) are signs of professional maturity. This maturity will require that research and practice tend more specifically to particular teaching and learning contexts and to the human motives and intentions which drive the decisions made about teaching and learning. Key, in this enterprise, will be the concept of purpose.

Teaching and supervisory practices, whether created in use, adapted from, or expressed as replications of existing models must be both cogent and relevant. Cogency and relevancy are standard scientific criteria used to judge the adequacy of knowledge claims and applications of these claims in professional practice (Dunn, 1980). Cogency refers to the rational appeal, compelling reason and convincing appearance of teaching and supervisory models and resulting professional decisions and actions. Relevancy refers to

applicability and pertinence of such models, decisions and actions to the matters at hand. Both cogency and relevance are established by, and thus dependent upon, the purposes one has in mind. Models and practices, therefore, are neither cogent or relevant in an absolute sense.

At the risk of over simplification, the two dimensions are depicted as ordinate and abscissa respectively in grid form below:



In the actual world of model development and practice one finds reality to be depicted by each of the grid quadrants. Ideally reality which falls into high C and R is the most desirable and reality which falls into low C and R is to be avoided. The fate of reality which falls in the two remaining quadrants is much less clear. One finds, for example, a distinct preference among both researchers and practitioners for models and practices characterized by high cogency and low relevance over those

characterized by low cogency and high relevance.

Cogency can be misplaced or misjudged. An example of misjudged cogency in research is the setting of statistical limits as either too high or too low - commonly referred to as Types I and II errors. These are errors in practical judgment which result in either acceptance of suspected reality or rejection of valid reality. Misplaced cogency, on the other hand, refers not to errors of method, precision, or measurement but to the adequacy of the problems addressed. Addressing the wrong problem in a meticulous and precise way is an example. Medawar (1984) is instructive here: "It has been shrewdly observed that an experiment not worth doing is not worth doing well" (29). Using direct instruction techniques in an attempt to attain higher level learning outcomes might well be an example of misplaced cogency. When this occurs we commit the Type III error (Mitroff, 1974). It is better to heed Tukey's (quoted in Rose, 1977) admonition than to persist in committing the type III error: "Far better an approximate answer to the right question which is often vague than an exact answer to the wrong question, which can always be made precise" (23).

Misplaced relevance refers to the development and application of cogent knowledge which is relevant to one type of problem but not another. Hunter's model of teaching and supervision, for example, might be both cogent and relevant for one population of teachers (novices and less able teachers) but not another. When the model is prescribed universally there is the danger of

misplaced relevance - a Type IV error (Dunn, 1980).

In summary, the models and theories which undergird practice in supervision and teaching are square. They are both mind dependent and mind dominant. They emerge from a series of subjective decisions (assumptions, protocols, methodologies etc.) but once established they become dominating mindscapes which program our thinking and create our reality. The worlds of supervision and teaching, are round. When we force square theories onto a round world we impose a reality rather than construct it from its context. These events, because they are subject to the Law of Conservation of Information, increase the liklihood of making Type III and IV errors. If we view our square theories metaphorically rather than literally, they would serve less to impose a reality on our round world and more to enhance our understandings of this world. They would help us to reflect on our practice and make more informed decisions about teaching and supervision. They would help us to create knowledge in use as our professional practice unfolds. Such metaphorical use of theories and models is, I believe, the basis for building a relevant science of supervision.

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